



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,585	04/16/2002	Herman Deweerdt	60132-074	1512

7590 08/01/2003

Raymond E Scott
Howard & Howard Attorney P C
Suite 101
39400 Woodward Avenue
Bloomfield Hills, MI 48304

EXAMINER

PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
----------	--------------

2872

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/674,585

Applicant(s)

DEWEERD ET AL.

Examiner

Joshua L Pritchett

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: on page 6 line 21 the applicant incorrectly labels the carriage as 54 the examiner suggests changing the reference number of the carriage to 58.

The disclosure is objected to because of the following informalities: the specification fails to claim priority to the provisional application 60/093,882 or the PCT application PCT/US99/16412.

Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 14 states that the first drive mechanism includes a retainer to fixedly hold a specimen to the carriage. There is no support for this claim limitation in the specification or the drawings. Fig. 3 does not include the specimen (90) at all, and the discussion of the drive mechanism on page 6 of the specification does not discuss the claim limitation. Claim 11 states that the first drive mechanism is a means to scan a lens relative to the specimen, which does not

Art Unit: 2872

correspond to the limitations of claim 14. Claim 14 will not be examined further because no means of correctly understanding the claim exists.

Appropriate correction is required.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the specimen moving in an arcuate manner as claimed in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

The information disclosure statement filed July 30, 2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

Claim 15 is objected to because of the following informalities: line one states “said secondt drive” examiner suggests changing “secondt” to “second”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6, 8-9 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Dixon (US 5,381,224).

Regarding claim 1, Dixon discloses an optical instrument comprising a transmitter (102) that emits an optical signal; a reflector (302), which directs the optical signal onto a specimen; a detector (256 or 140), which detects a reflected optical signal from the specimen; a first drive mechanism for varying the position of the optical signal on the specimen (col. 6 lines 42-44); and a second drive mechanism for varying the position of the specimen relative to the optical signal (col. 6 lines 45-46).

Art Unit: 2872

Regarding claim 2, Dixon discloses the reflector (302) directs the optical signal along a first path onto the specimen and directs the reflected optical signal along a second path to the detector (140), the first and second path have a common path segment (Fig. 3b).

Regarding claim 6, Dixon discloses the second drive mechanism move the specimen in a linear manner (col. 6 lines 45-46).

Regarding claim 8, Dixon discloses the first drive mechanism moves the optical signal substantially perpendicular to movement of the specimen (col. 6 lines 42-46).

Regarding claim 9, Dixon discloses the first drive mechanism includes a scanning lens (128) to focus the optical signal on the specimen. Dixon states that the scan lens (128) is used to focus the optical signal through the beam splitter and onto the specimen (col. 6 lines 9-11).

Regarding claim 16, Dixon discloses a method of scanning fluorescent samples comprising exciting the samples with an optical signal of a known first wavelength (col. 6 lines 59-65); detecting an optical signal of a second wavelength (col. 6 lines 59-65); translating the optical signal in a first and second direction (col. 6 lines 42-44) and translating the sample in a third direction substantially perpendicular to the first and second directions (col. 6 lines 42-46).

Regarding claim 17, Dixon discloses the use of a dichroic beam splitter (252, col. 6 lines 48-49) to focus the incident light to a point on the specimen (Fig. 3b). By focusing the light to a point on the specimen the dichroic beam splitter of Dixon would inherently combine the plurality of lasers prior to excitation of the specimen.

Regarding claim 18, Dixon discloses splitting the optical signal into a plurality of optical signals prior to detecting (col. 6 lines 48-55).

Art Unit: 2872

Regarding claim 19, Dixon discloses a portion of the exciting optical signal and a portion of the detecting optical signal have a common path (Fig. 3b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Sharon (US 4,015,906).

Regarding claim 3, Dixon teaches the invention as claimed including a beam splitting mirror (252), and the beam splitting mirror defining one end of the common path segment (Fig. 3b). Dixon lacks the beam splitting mirror having an opening. Sharon teaches a beam splitting mirror (16) with an opening (18). Sharon teaches that the outer fringe of the light is intercepted by the mirror (16) and that the light passing through the opening (18) is a sharply defined focused beam (col. 4 lines 23-29). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to replace the beam splitting mirror of Dixon with the beam splitting mirror with an opening as taught by Sharon for the purpose of eliminating any

Art Unit: 2872

excess or stray light created by the scanning of the mirrors in Dixon, so as to excite only a specific region of the specimen and thus obtain more precise results.

Regarding claim 4, Dixon teaches the first path and the second path approach the beam splitting mirror from a first direction and a second direction (Fig. 3b).

Regarding claim 5, Dixon teaches the invention as claimed but lacks reference to the beam splitting mirror allowing the first path to pass through the opening. Sharon teaches the first path passing through the opening of the beam splitting mirror (Fig. 1). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the beam splitting mirror of Dixon have the first path go through an opening in the beam splitting mirror as taught by Sharon for the purpose of eliminating any excess or stray light created by the scanning of the mirrors in Dixon, so as to excite only a specific region of the specimen and thus obtain more precise results.

Regarding claim 11, claim 11 is rejected for the same reasons as claims 1, 3 and 5 discussed above.

Regarding claim 12, Dixon teaches the invention as claimed but lacks reference to the use of a plurality of lasers. It has been held that the duplication of parts is within the ability of one ordinarily trained in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the transmitter of Dixon include a plurality of lasers for the purpose of exposing the specimen to a variety of wavelengths to facilitate faster and more efficient examination of the specimen.

Regarding claim 13, Dixon teaches the use of a dichroic beam splitter (252, col. 6 lines 48-49) to focus the incident light to a point on the specimen (Fig. 3b). By focusing the light to a

Art Unit: 2872

point on the specimen the dichroic beam splitter of Dixon would inherently combine the plurality of lasers prior to excitation of the specimen.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Muller (US 4,058,731).

Dixon teaches the invention as claimed but lacks reference to arcuate movement of the specimen. Muller teaches microscopy with the specimen moving in an arcuate manner (col. 8 line 57 – col. 9 line 2). Muller states that the specimen can move during scanning and therefore a correction device is needed to rotate or tilt the specimen in order to correct for the specimen movement and obtain a clear image during fluorescent microscopy (col. 8 line 67 – col. 9 line 2). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the specimen of Dixon move in an arcuate manner as taught by Muller for the purpose of correcting for any inadvertent specimen movement to obtain precise results.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Blais (US 4,800,271).

Dixon teaches the invention as claimed but lacks reference to the use of a galvanometric torque motor. Blais teaches the use of a galvanometric torque motor (5) in moving optical elements of a system. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the galvanometric torque motor taught by Blais to pivot the reflector of Dixon for the purpose of inexpensive yet accurate scanning of the specimen through reflector rotation.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Sharon as applied to claim 11 above, and further in view of Park (US 5,877,891).

Dixon in combination with Maly teaches the invention as claimed but lacks reference to the use of a stepper motor with a screw. Park teaches the a drive mechanism for adjusting the location of the specimen that includes a precision stepper motor (622) having a screw (626); a carriage (114) having a nut (628) that engages the screw (col. 16 lines 16-17); a retainer (118) to fixedly hold a specimen to the carriage (col. 12 lines 28-31); and the stepper motor operable to rotate the screw (col. 16 lines 15-17), whereby rotation of the screw is translated into linear movement of the specimen (Fig. 6C, col. 12 line 28). Fig. 6C shows that the stepper motor drive mechanism is part of element 116 of Parker, which is an x-y scanning stage as stated in col. 12 of Parker. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the second drive mechanism of Dixon be a stepper motor with a screw as taught by Park for the purpose of eliminating all possible translation in the x and z planes as defined by Dixon and rotation of the specimen in order to reduce experimental error and collect accurate data.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2872

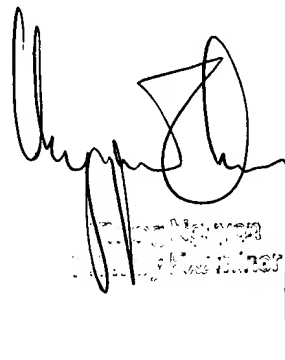
Kain (US 5,672,880) teaches a scanning fluorescent assembly with a galvanometric motor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP
July 23, 2003

A handwritten signature in black ink, appearing to read "Joshua L. Pritchett", with a stylized flourish at the end.